



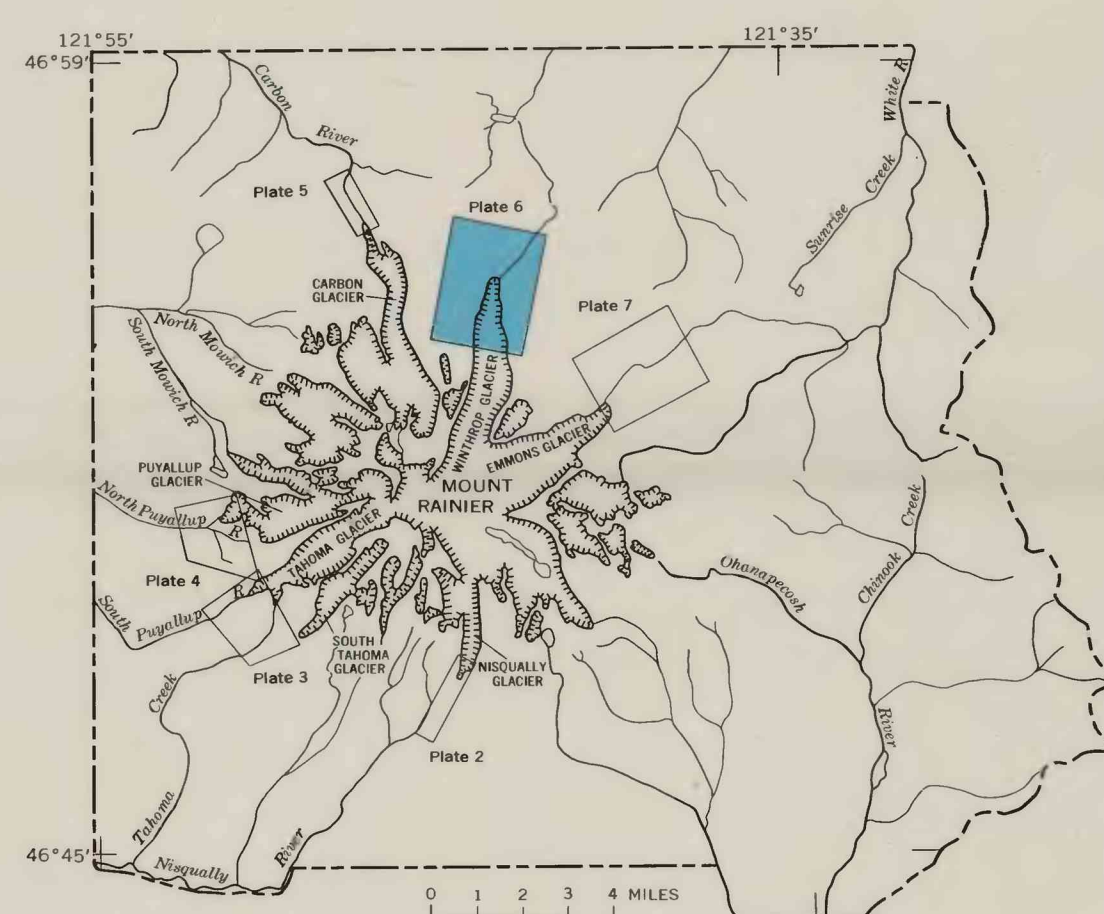
FIGURE 1.—Oblique view of the lower part of Winthrop Glacier toward the southwest shows the white crevassed dark-gray gravel-covered active terminus and downvalley face of the stagnant ice. The 2,000- to 3,500-year-old advance left lateral moraines of the forested slope to the left are visible on the photograph. Winthrop Glacier extended as far downvalley as the brown line in the early part of the 18th century. Winthrop Creek is on the left and West Fork White River is on the right. Aug. 28, 1967.



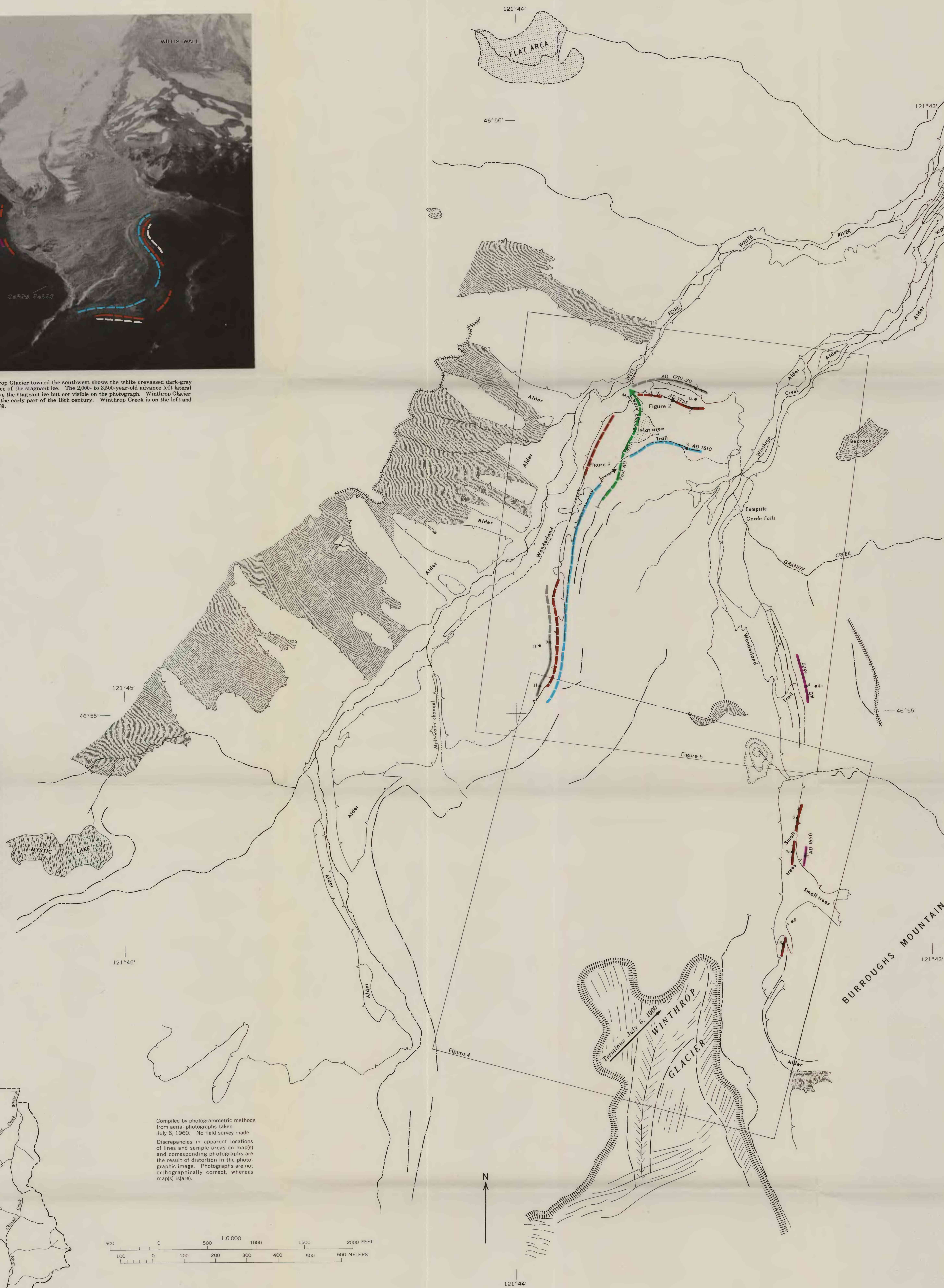
FIGURE 2.—Rock covered surface at the left of center (area 1) is the modern terminal moraine of Winthrop Glacier. The oldest tree here was 2 feet tall in A.D. 1780. Trees at the extreme left are on an older surface (OS). Man is standing in area 2 where the oldest tree was 2 feet tall in A.D. 1780. The younger moraine, area 3, is out of the picture to the right. Winthrop Creek is at the base of the hill in background flowing to the left in a northward direction. View is easterly. July 22, 1962.



FIGURE 3.—From about 280 to 145 years ago Winthrop Glacier occupied most of area shown here in downvalley view. The nearly barren hill of debris, in the center, is between Winthrop Creek on the right and West Fork White River on the left. The dense forest in the middle distance is growing on an older surface (OS). Wonderland Trail, in the center foreground, extends northeastward and eastward over the moraine to the extreme right center. In the foreground and into the center, the trail follows the A.D. 1810 terminal position of the glacier. Area 3 is on the moraine to the right of center. Material underlying the flat plain across the middle of the view, cut by the narrow bowl-dry ridge in the center, was deposited in a pond behind the A.D. 1765 terminal moraine. This pond soon drained into West Fork White River to the left as did melt water from the glacier as it receded southward to the right. The melt-water channel is lined with alder shrubs from the right to the left across the picture. July 23, 1962.



INDEX MAP OF MOUNT RAINIER SHOWING AREA OF THIS MAP SHADED



Compiled by photogrammetric methods from aerial photographs taken July 6, 1960. No field survey made. Discrepancies in apparent locations of lines and sample areas on maps and corresponding photographs are the result of distortion in the photographic image. Photographs are not orthographically correct, whereas maps are.

500 0 500 1,000 1,500 2,000 FEET
100 0 100 200 300 400 500 600 METERS

EXPLANATION	
TOPOGRAPHIC	
Contour line Interval 25 feet without datum	
Depression contour	
Stream or channel bottom	
Timber edge Trees on tick side of line	
Ridge	
Undated moraine crest	
Dated moraine crest	
Glacier terminus July 6, 1960	
Glacial crevasses	
Talus and alluvial cones Rock slides	
Escarpment or cliff	
Trail	
GEOHYDROLOGIC	
Sample area	
1650-70	
1710-20	
1755-65	
1810	
Moraines	
Dashed where inferred. Approximate A.D. dates indicate start of recession	
post 1810	
Melt-water channels	
Dashed where inferred. Arrowhead indicates end of flow	
Figure 5	
Area covered by photograph	
Figure 2	
Photographic site and direction of view	

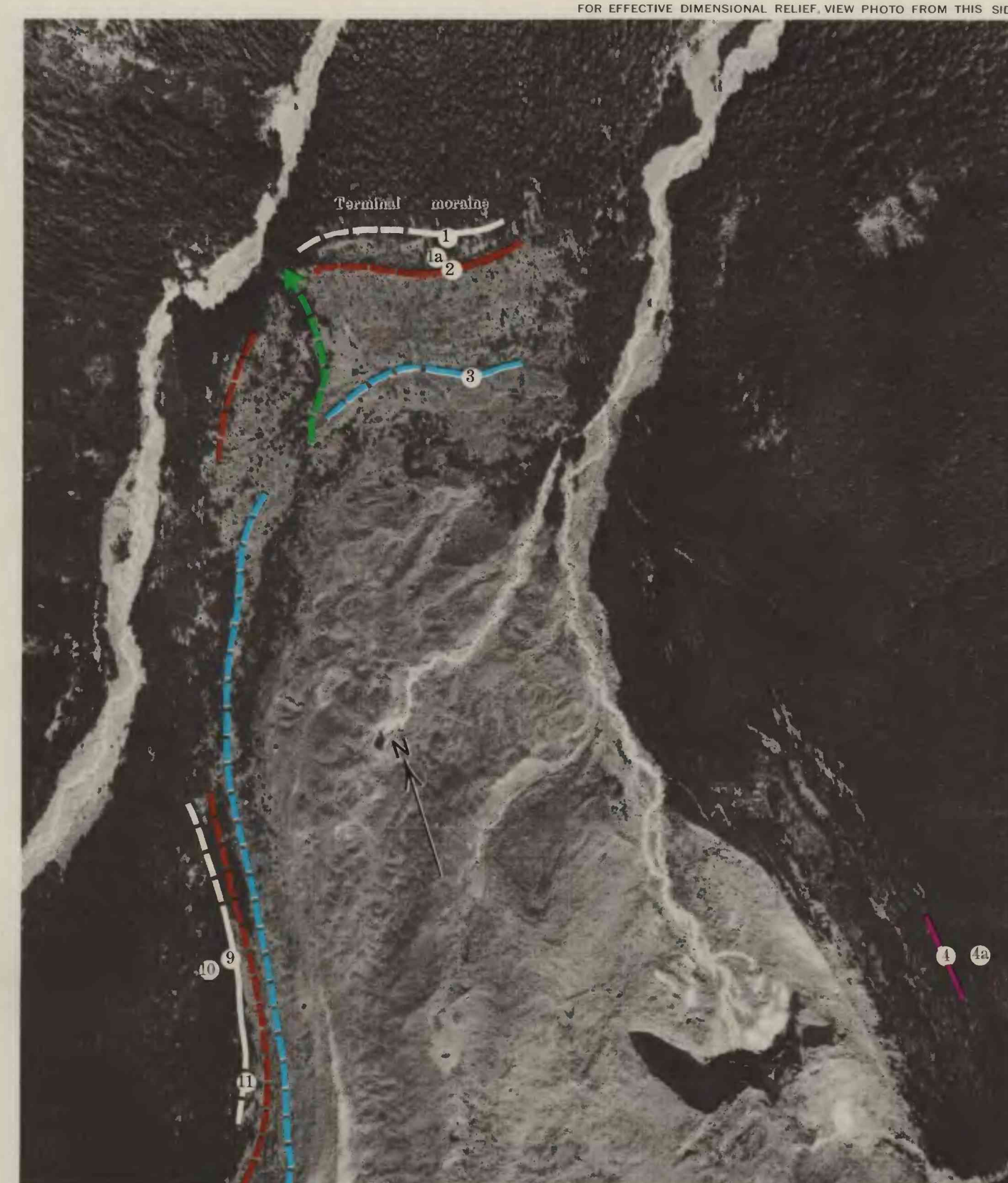


FIGURE 5.—Vertical photograph of West Fork and Winthrop Creek valleys near Winthrop Glacier showing location of the terminal moraine and the lower parts of internal moraines of Winthrop Glacier, sample areas, and inferred locations of A.D. 1650-70, 1710-20, and 1810 moraines. Surface that appears flat and free of boulders southeast of area 3 and south of the trail is underlain by sediment deposited in a pond dammed by the moraine (fig. 3). For a considerable distance across the relatively bare part of the valley Wonderland Trail follows the A.D. 1810 moraine. Aug. 16, 1967.



FIGURE 4.—Vertical photograph of the active terminus of Winthrop Glacier and of the upvalley end of the stagnant ice. Area photographed is just south of the area shown in figure 5 and shows sample areas and locations of the A.D. 1650 and 1765 moraines. Aug. 16, 1967.